

CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

- 1       1. A fiber optic sensor comprising  
2             a body of crystalline material,  
3             a fiber optic element having an end surface,  
4       said fiber optic element being bonded to said body  
5       of crystalline material, and  
6             a reflective surface positioned by said body of  
7       crystalline material at a location separated from  
8       said end surface of said fiber optic element to form  
9       a gap.
- 1       2. A fiber optic sensor as recited in claim 1,  
2       wherein a coefficient of thermal expansion of said  
3       crystalline material is matched to a coefficient of  
4       thermal expansion of said fiber optic element.
- 1       3. A fiber optic sensor as recited in claim 1,  
2       wherein the difference between a coefficient of  
3       thermal expansion of said crystalline material and a  
4       coefficient of thermal expansion of said fiber optic  
5       element is maximized.
- 1       4. A fiber optic sensor as recited in claim 1,  
2       wherein said body of crystalline material is in the  
3       form of a tube.

1 5. A fiber optic sensor as recited in claim 1,  
2 further including a diaphragm providing said  
3 reflective surface.

1 6. A fiber optic sensor as recited in claim 1,  
2 wherein said body of crystalline material is a  
3 substantially planar substrate having a groove in a  
4 surface thereof.

1 7. A fiber optic sensor as recited in claim 1,  
2 wherein said crystalline material is monocrystalline  
3 material.

1 8. A telemetry system including a fiber optic  
2 sensor, said fiber optic sensor comprising  
3 a body of crystalline material,  
4 a fiber optic element having an end surface,  
5 said fiber optic element being bonded to said body  
6 of crystalline material, and  
7 a reflective surface positioned by said body of  
8 crystalline material at a location separated from  
9 said end surface of said fiber optic element to form  
10 a gap.

1 9. A fiber optic sensor as recited in claim 8,  
2 wherein a coefficient of thermal expansion of said  
3 crystalline material is matched to a coefficient of  
4 thermal expansion of said fiber optic element.

1 10. A fiber optic sensor as recited in claim 8,  
2 wherein the difference between a coefficient of  
3 thermal expansion of said crystalline material and a  
4 coefficient of thermal expansion of said fiber optic  
5 element is maximized.

6 11. A fiber optic sensor as recited in claim 8,  
7 wherein said body of crystalline material is in the  
8 form of a tube.

9 12. A fiber optic sensor as recited in claim 8,  
10 further including a diaphragm providing said  
11 reflective surface.

1 13. A fiber optic sensor as recited in claim 8,  
2 wherein said body of crystalline material is a  
3 substantially planar substrate having a groove in a  
4 surface thereof.

1 14. A fiber optic sensor as recited in claim 8,  
2 wherein said crystalline material is monocrystalline  
3 material.